Residential Construction Quality: Wall Insulation

- Current compliance rules do not reflect industry standard practice
  - Framing Factors
  - Insulation Defects
- We propose budget neutral corrections for both

Proposed Changes

- Framing Factor from 15% to 26%
- Batt R-factors x 0.69
- Results – Increased U-factors
  - 2x4 R-13 up 37%
  - With Foam Sheathing up 27%
- Add credit for better insulation installation

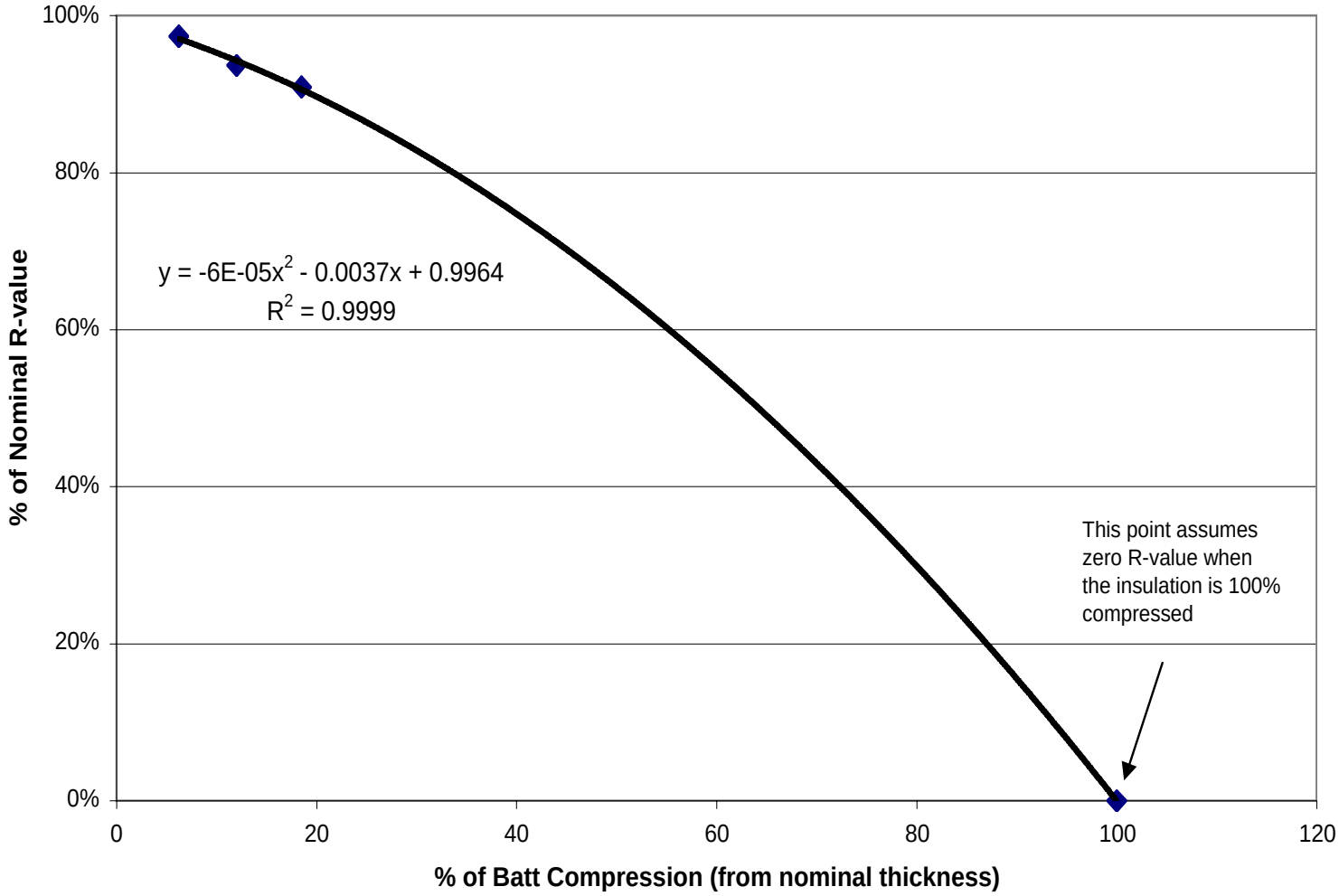
Background

- Residential Construction Quality Project
  - Insulation quality inspection
  - Defect analysis
- Framing Factor Study
  - CA wall factors increase 15% to 26%
  - Consistent with national results

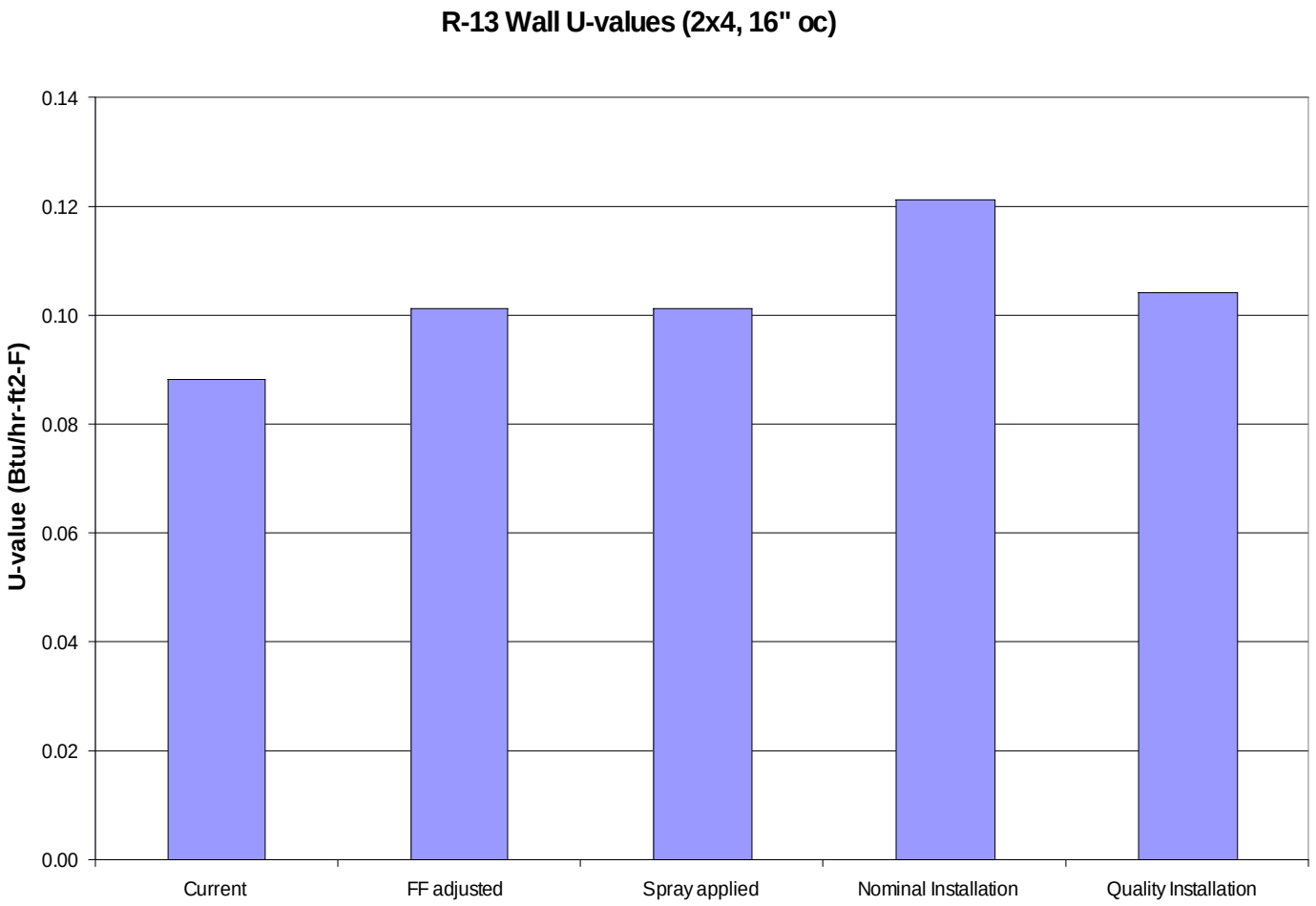
Analysis of Field Data

- 10 homes analyzed in detail
  - 5 Industry Standard
  - 5 high quality
- Industry standard
  - Defects increased U-factor by 20%
- High Quality
  - Batt U-factor increase 3%
  - Spray in had no defects

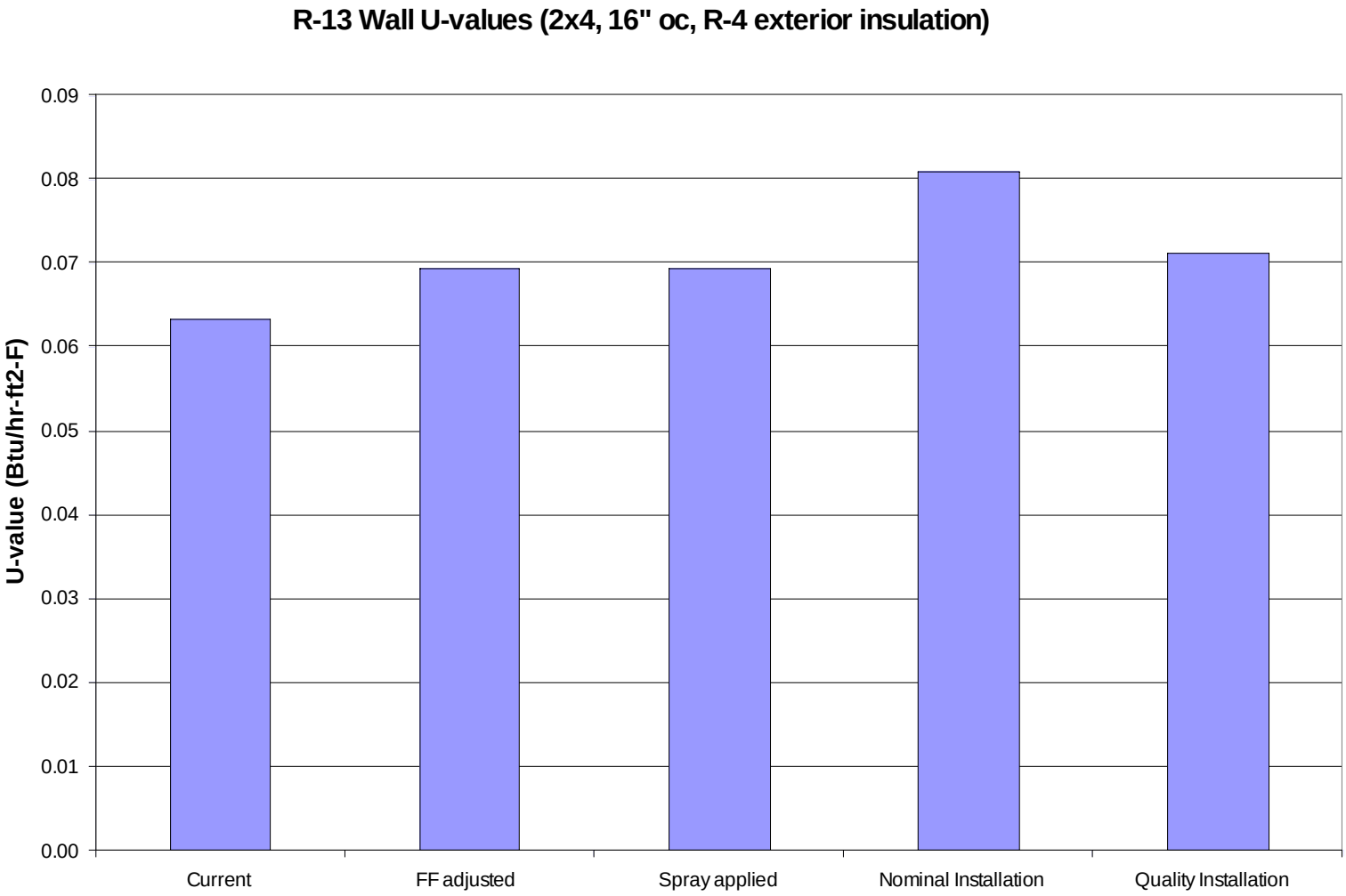
Figure 1: Cavity R-value Degradation due to Fiberglass Batt Compression



Unsheathed Wall



Sheathed Wall

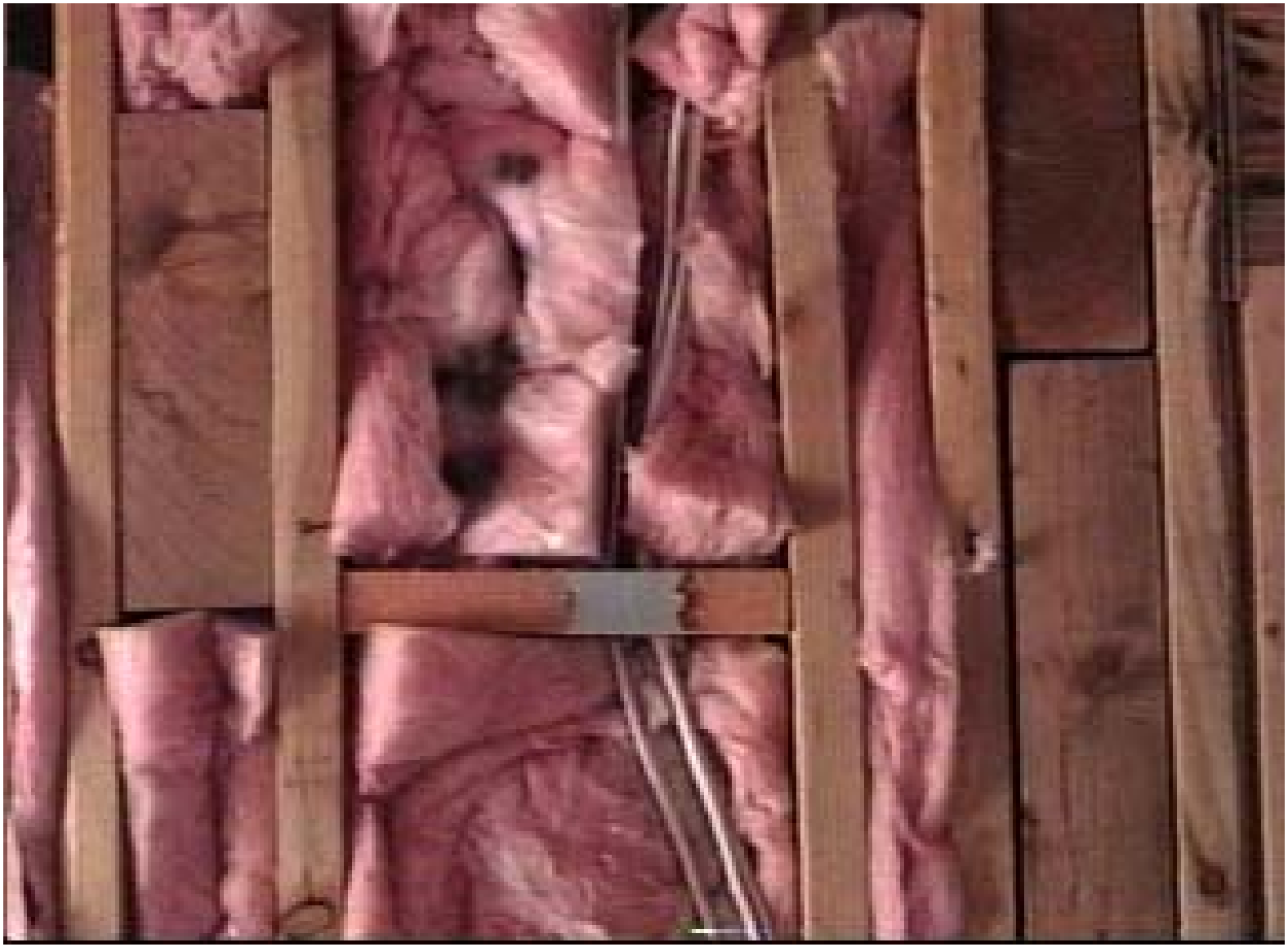


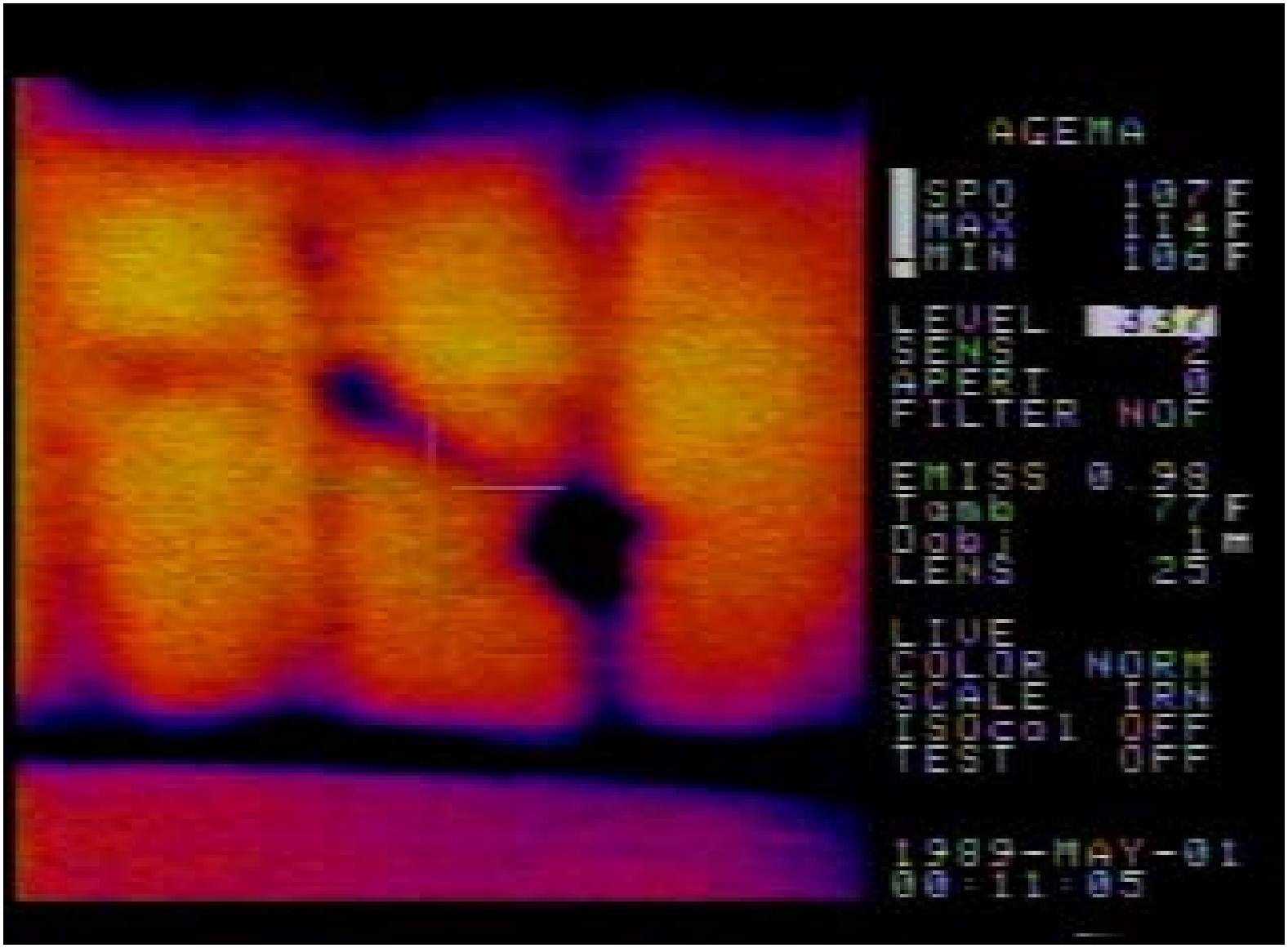
Wall Insulation Performance Barriers

- Increasing architectural complexity
- Seismic and structural requirements
- Obstructions: data, audio, video, security, home automation, electrical panels, medicine cabinets, etc.
- Price pressure (& training budgets)

Wall Insulation Performance Factors

- Air tight stud cavity
- Fill cavity and be in contact with the air barrier on both sides
- No gaps or voids
- No compression

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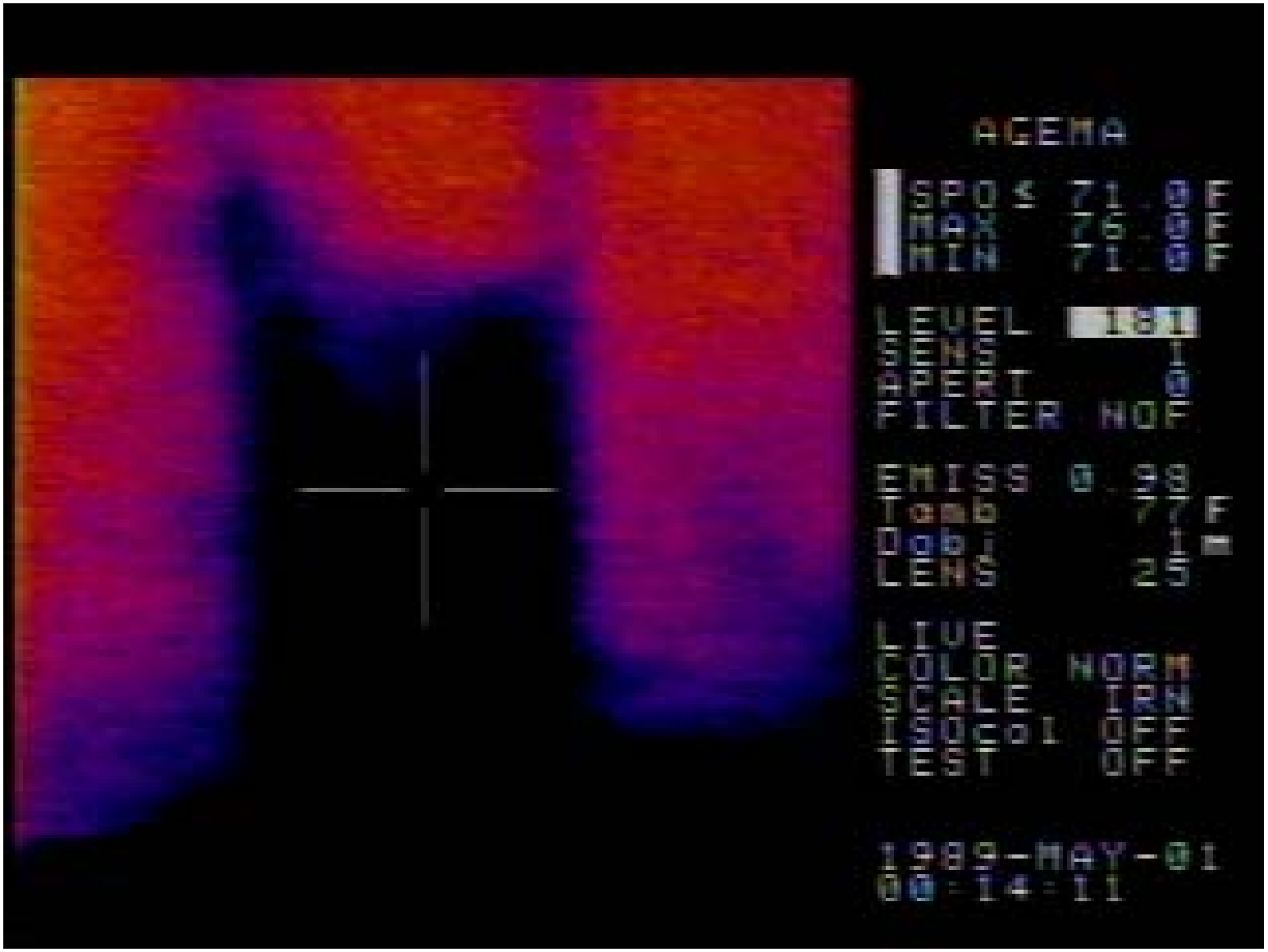
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